

SECTION 08 80 00

GLAZING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing.

1.02 RELATED SECTIONS

- A. Contractor, at its option, may furnish doors and windows factory-glazed and deliver such doors and windows to the site pre-glazed. Glass and glazing of factory-glazed doors and windows shall conform with the requirements specified herein.

1.03 MEASUREMENT AND PAYMENT

- A. General: Glass and glazing will not be measured separately for payment but will be paid for as part of the Contract lump sum price for Architectural Work.

1.04 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1 Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C509 Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
 - 2. ASTM C669 Specification for Glazing Compounds for Back Bedding and Face Glazing of Metal Sash
 - 3. ASTM C864 Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
 - 4. ASTM C920 Specification for Elastomeric Joint Sealants
 - 5. ASTM C1036 Specification for Flat Glass
 - 6. ASTM C1048 Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass
 - 7. ASTM C1172 Specification for Laminated Architectural Flat Glass

- 8. ASTM D790 Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- 9. ASTM D2240 Test Method for Rubber Property - Durometer Hardness
- 10. ASTM E773 Test Methods for Seal Durability of Sealed Insulating Glass Units
- 11. ASTM E774 Specification for Sealed Insulating Glass Units
- 12. ASTM F36 Test Method for Compressibility and Recovery of Gasket Materials
- C. Code of Federal Regulations (CFR):
 - 1. Title 16, Part 1201, Safety Standard for Architectural Glazing Materials (16 CFR 1201)
- D. Glass Association of North America (FGMA):
 - 1. FGMA Glazing Manual
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 80 Fire Doors and Fire Windows
- F. Underwriters Laboratories (UL):
 - 1. UL 752 Bullet Resisting Equipment

1.05 REGULATORY REQUIREMENTS

- A. In addition to the foregoing referenced standards, the regulatory requirements that govern the work of this Section include the following governing code:
 - 1. California Code of Regulations (CCR), Title 24, Part 2, California Building Code, Chapter 24, "Glass and Glazing".

1.06 SUBMITTALS

- A. General: Refer to Section 01 33 00, Submittal Procedures, and Section 01 33 23, Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Product Data: Submit manufacturer's product data indicating compliance with specified requirements.
- C. Samples:
 - 1. Submit 8-inch by 10-inch sample of each type, thickness, and color of glass to be installed. Identify each sample with the manufacturer's name, product name,

type of glass, thickness, color designation, and installation location. Protect sample edges for handler's safety.

2. Submit 10-inch samples of each type of glazing gasket, and tape, and glazing compound, identified with manufacturer's name, product name, and type of material.
- D. Certificates: Submit certification that insulating glass units furnished and installed are faithful replicas of insulating glass units that have passed the program of testing specified in ASTM E773.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Glass and glazing shall comply with applicable requirements of the California Building Code, Chapter 24, ANSI Z97.1, and 16 CFR 1201.
- B. Tempered Glass:
 1. Tempered and heat strengthened glass shall be horizontally treated; vertical treatment will not be acceptable. Fabrication and treatment shall be such that roller distortion lines (where they may occur) run horizontally (parallel to sill and head) after installation.
 2. Tempered glass shall bear the manufacturer's identification as to type and thickness. Such identification for glazing shall be permanently etched so as to be visible after glass has been installed. Glass other than fully tempered (FT) glass shall not have etched labels.
- C. Identification: Label each pane of glass and glass unit with type, thickness, quality, and color of glass and with manufacturer's trade name.
- D. Glazing: Glazing compounds and methods of glazing shall conform with applicable requirements of FGMA Glazing Manual.

PART 2 – PRODUCTS

2.01 GLASS

- A. Glass Standards and Requirements: Glass materials shall conform with ASTM C1036 for float glass and ASTM C1048 for heat-strengthened and tempered glass, as applicable. Types and thicknesses of glass shall be as indicated.
- B. Clear Float Glass: ASTM C1036, Type I, Class 1, Quality q3, with flat, smooth and glossy surfaces for architectural glazing.
- C. Tinted Float Glass: ASTM C1036, Type I, Class 2, Quality q3, of tint color indicated, with flat smooth and glossy surfaces for architectural glazing.

- D. Wired Glass: ASTM C1036, Type II, Class 1, Form 1, Quality q8, Mesh m1-Diamond or m2-Square as indicated. Glass for fire-rated doors shall conform with applicable requirements of NFPA 80.
- E. Clear Tempered Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality q3.
- F. Tinted Tempered Glass: ASTM C1048, Kind FT, Condition A, Type I, Class 2, Quality q3, of tint color indicated.
- G. Laminated Tempered Glass: Made up of two panes of fully tempered (FT), Type I, Class 1, Quality q3 glass of thicknesses indicated, with special 0.060-inch vinyl interlayer, meeting requirements of ASTM C1172.
- H. Insulating Glass: Preassembled unit, comprising two organically sealed panes of clear tempered glass separated by dehydrated (desiccated) air space, of sizes and thicknesses indicated, meeting requirements of ASTM E774.
- I. Bullet Resistant Plastic Glass: Monolithic or laminated polycarbonate sheets. Exterior shall be mar resistant. The assembly shall have a flexure strength of not less than 13,500 psi in conformance with ASTM D790; have 87 percent light transmission; weigh not more than 5.1 lbs/sq.ft., and meet UL 752 Level 1 Bullet Resistant Acrylic.

2.02 GLAZING MATERIALS

- A. Setting Blocks and Spacers: ASTM C864, semi-hard neoprene or vinyl rubber, 70-90 Shore A hardness when tested in accordance with ASTM D2240, of width equal to thickness of glass and long enough to limit load on each block to 15 pounds per square inch. Minimum length of setting blocks shall be 3 inches.
- B. Glazing Gaskets: Continuous, closed-cell, extruded neoprene or vinyl rubber, channel type, manufactured for glazing in type of metal doors and frames indicated, conforming with applicable requirements of ASTM C509. Color shall be as selected by the Engineer from manufacturer's standards. Gaskets shall be capable of being compressed 40 percent of original size and shall have 100 percent recovery capability when tested in accordance with ASTM F36.
- C. Glazing Tape: Synthetic rubber sheet or strip material reinforced and stabilized with fabric mesh in center and treated with a bonding agent on both contact surfaces.
- D. Glazing Compounds:
 - 1. For Face Glazing: ASTM C669, elastic glazing compound, manufactured for back bedding and face glazing of metal sash, in color as selected by the Engineer from manufacturer's standards.
 - a. Include window manufacturer's glass-retaining glazing clips for face glazing.
 - 2. Elastomeric Joint Sealant: Sealant for glass to glass edge joints shall be a silicone sealant conforming with ASTM C920, black in color.

3. For Channel Glazing: ASTM C669, elastomeric glazing compound, manufactured for glazing with metal stops and glazing beads of metal sash, conforming with applicable requirements of the FGMA Glazing Manual, in color as selected by the Engineer from manufacturer's standards.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Obtain field dimensions of each opening that is to receive glass and cut each light to provide the optimal bite on, and clearance from, the sash or frame.
- B. Clean the surfaces that are to receive glass and glazing materials. Surfaces shall be free of dirt, corrosion, residue, and any other substance that may impair adhesion of glazing materials.
- C. Seal porous glazing channels or recesses with substrate compatible primer or sealer. Prime surfaces scheduled to receive glazing compound.
- D. Do not perform glazing when ambient temperature is below 40 degrees F or during damp or rainy weather.

3.02 GLAZING

- A. General Glazing Requirements:
 1. Comply with applicable provisions of FGMA Glazing Manual and the California Building Code, Table No. 24-B, for minimum glazing requirements, and assure that minimum frame lap (minimum grip of glass) and edge clearances are provided as required for sizes of openings. Provide for expansion and contraction of glass as required.
 2. Conform with manufacturers' latest published installation instructions and recommendations for glazing of tempered glass, wired glass, laminated glass, and insulating glass. Follow manufacturers' latest published instructions for protection of edges and sizing of glass.
 3. Install glass in fire-rated assemblies in accordance with applicable requirements of NFPA 80.
 4. Provide setting blocks at quarter points along bottom of glass pane. Blocks shall support glass not less than 1/16 inch above metal. Provide spacers to hold glass in center between stops.
- B. Glazing of Hollow Metal Doors and Frames: Glass shall be set around all edges with glazing gaskets hereinbefore specified. Provide setting blocks and spacer blocks as required. Set gasket legs on both sides of glass. Gasket shall be continuous, notched only at top rail in the center. Compress gaskets at least 15 percent to form a tight seal.

C. Glazing of Metal Windows with Compound:

1. Face Glazing: Glass shall be glazed around all edges and exterior face of glass with glazing compound hereinbefore specified. Provide setting blocks and glazing clips as required. Clean surfaces to be glazed with solvent. Apply and compress glazing compound; smooth out and point with putty knife at 30-degree to 45-degree angle. Finished surfaces shall be uniformly smooth at required angle, mitered at corners.
2. Channel Glazing: Install glass of type indicated. Provide setting blocks, spacers, and accessories as required. Install glass in full bed of glazing compound and secure with stops, as required. No metal shall touch glass. Strike surplus compound smoothly from both sides of glass. Do not undercut compound.

3.03 CLEANING AND REPLACEMENT

- A. Upon completion of glazing, remove paint spots, spatters, and other blemishes from glass.
- B. Assure that each light is identified as to type and grade of glass.
- C. Remove and replace glass panes that are cracked or broken and where distortion is evident and distracting, as determined by the Engineer.
- D. Remove paper labels, wash, and polish glass just before acceptance by the Engineer.
- E. Protect glass against damage from subsequent construction activities and vandalism.

END OF SECTION 08 80 00